

Section 13 — Universal Decay Law (UDL): ϕ^7 – ϕ^8 – ϕ^9 Transition Dynamics

Section 13 establishes the Universal Decay Law (UDL) within the FUNt framework. All particle decay processes— β -decay, γ -emission, proton–electron resonance collapse, and photon release—follow the same harmonic transition sequence governed by ϕ^7 , ϕ^8 , and ϕ^9 thresholds. This section formalizes the unified mathematics behind decay timing, inversion windows, and scalar-field resolution.

13.1 Definition of the Universal Decay Law (UDL)

- All decay processes occur when a particle crosses the ϕ^7 coherence boundary.
- ϕ^7 marks the threshold where bound energy transitions to photon-like harmonic behavior.
- The full decay sequence follows $\phi^7 \rightarrow \phi^8 \rightarrow \phi^9$.
- This law applies to electrons, protons, neutrons, and composite nuclei.
- [Insert ϕ^7 boundary diagram here]

13.2 ϕ^7 — Emission Threshold

- Electron ϕ^7 = photon emission onset.
- Proton ϕ^7 = torsional decay coupler.
- Neutron ϕ^7 = β -decay trigger resonance.
- γ -lines correspond to $\phi^7 \rightarrow \phi^0$ coherence collapse.
- [Insert emission diagram here]

13.3 ϕ^8 — Mirror-State Transition

- ϕ^8 marks the positron–electron mirror harmonic.
- Neutron β -decay $n \rightarrow p + e^- + \bar{\nu}$ corresponds to ϕ^8 inverted geometry.
- Anti-particle behavior aligns with ϕ^8 resonant inversion.
- Marks the midpoint between coherence and scalar inversion.
- [Insert ϕ^8 diagram here]

13.4 ϕ^9 — Scalar-Field Endpoint

- ϕ^9 corresponds to the point where mass identity collapses.
- Particles enter scalar-field transport mode at ϕ^9 .

- Represents the upper boundary of the decay pathway.
- Matches the top rung of the Dual-Decad ladder.
- [Insert φ^9 diagram here]

13.5 UDL Timing and Phase Geometry

- Decay timing depends on how long a particle remains in φ^7 coherence.
- Photon emission is near-instant: $\varphi^7 \rightarrow \varphi^0$.
- β -decay requires $\varphi^7 \rightarrow \varphi^8$ transition crossing.
- Rare proton decay aligns with $\varphi^7 \rightarrow \varphi^9$ inversion.
- [Insert timing diagram here]

13.6 Applications Across FUNt Physics

- Synchronizes decay behavior across all three particles.
- Enables prediction of spectral line intensity via φ^7 resonance.
- Defines scalar-field entry conditions for high-energy systems.
- Allows decay to be modeled as harmonic progression rather than randomness.
- [Insert application diagram here]